AIRCRAFT CIRCULARS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. 40

TRAINING AIRPLANE "AVIA B.H. 11"

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TRAINING AIRPLANE "AVIA B.H. 11"*

This is a two-seat low-wing monoplane with plywood fuselage. It is used by the Czechoslovakian army as a training and communication airplane and often as a touring airplane. It is very swift, stable and easy to pilot and can do all kinds of stunt flying even with two persons on board.

Structural Details

Wings.- Each wing is attached by two joints to the lower longerons of the fuselage and is rigidly braced by two tubular struts against the two upper longerons. The front struts are provided with threads for adjusting, thus enabling quick and easy assembling or disassembling. For transportation the demounted wings are suspended alongside the fuselage. The wing structure is wood, consisting of two spars, ribs and rods, with plywood covering between the leading edge and the rear spar, the whole being covered with fabric. The wings are trapezoidal and are thickest where the struts are attached. They are made in two sizes. The training airplane has a span of 9.72 m (31.89 ft.), while the touring airplane has a span of 10.2 m (33.46 ft.) with a wing area of 14.2 m^2 (152.85 sq.ft.). The ailerons have a framework of welded steel tubes and are operated by a system

* From a circular published by Milos Bondy A Spol.

of rods and levers.

Fuselage.- The four wood longerons are connected by transverse frames and are covered with plywood. Its general shape is quadrangular tapering at the rear to a vertical edge. The passenger sits in front of the pilot. A strong projection behind the pilot protects both in case of capsizing. The visibility is particularly good.

Controls.- These are the control stick and rudder bar. The training airplane has dual control with instantaneous disconnection.

Tail group.- The cantilever stabilizer is wood, while the elevator and rudder have steel-tube frames and are operated by flexible cables.

Landing gear.- Of mixed construction. The vertical struts are wood, while the inner V-struts and the rear struts are streamlined steel tubes. The two semi-axles are lodged in a small supporting plane and have rubber shock absorbers. The tail skid consists of steel springs.

Engine-propeller group.- The Walter engine is mounted on the first full bulkhead and actuates by direct drive an Avia wood propeller. The fuel tank is in the top of the fuselage. The oil tank is near the engine. Both tanks are made of sheet aluminum.

Airplanes of this type have made several flights from London to the Black Sea. One of these airplanes made a non-stop flight of 1200 km (746 miles). At the Prague speed contest in 1925, this type covered the circuit of 200 km (124.3 miles) at the rate of nearly 160 km (99.4 miles) per hour. It also won the "Cup of Italy" in 1925 and in 1926, and the Orly contest in 1926.

Characteristics

Span	9.72	m	31.89	ft.
Length	6.64	"	21.78	"
Height	2.53	"	8.30	"
Wing area	13.60	m^2	146.39	sq.ft.
Stabilizer	1.45	"	15.61	"
Elevator	1.13	"	12.16	"
Rudder	0.74	"	7.97	"
Weight empty	352	kg	776.03	lb.
Useful load	228	"	502.65	"
Full "	580	"	1278.68	"
Wing loading	42.5	kg/m^2	8.7	lb./sq.ft.
Power "	9.7	kg/HP	21.9	lb./HP.
Engine, Walter 5-cylinder radial	60	HP	59.2	HP.
Flight duration	4 hours			
Factor of safety	10			

Performances with Full Load

Maximum speed for 3 km (1.86 mi.)	160 km/h	99.4 M.P.H.
Minimum horizontal speed	75 "	.6 "
Landing speed	65 "	40.4 "
Climb to 2000 m (6562 ft.) in 12 minutes		
Ceiling	4000 m	(13123 ft.)

Translation by Dwight M. Miner,
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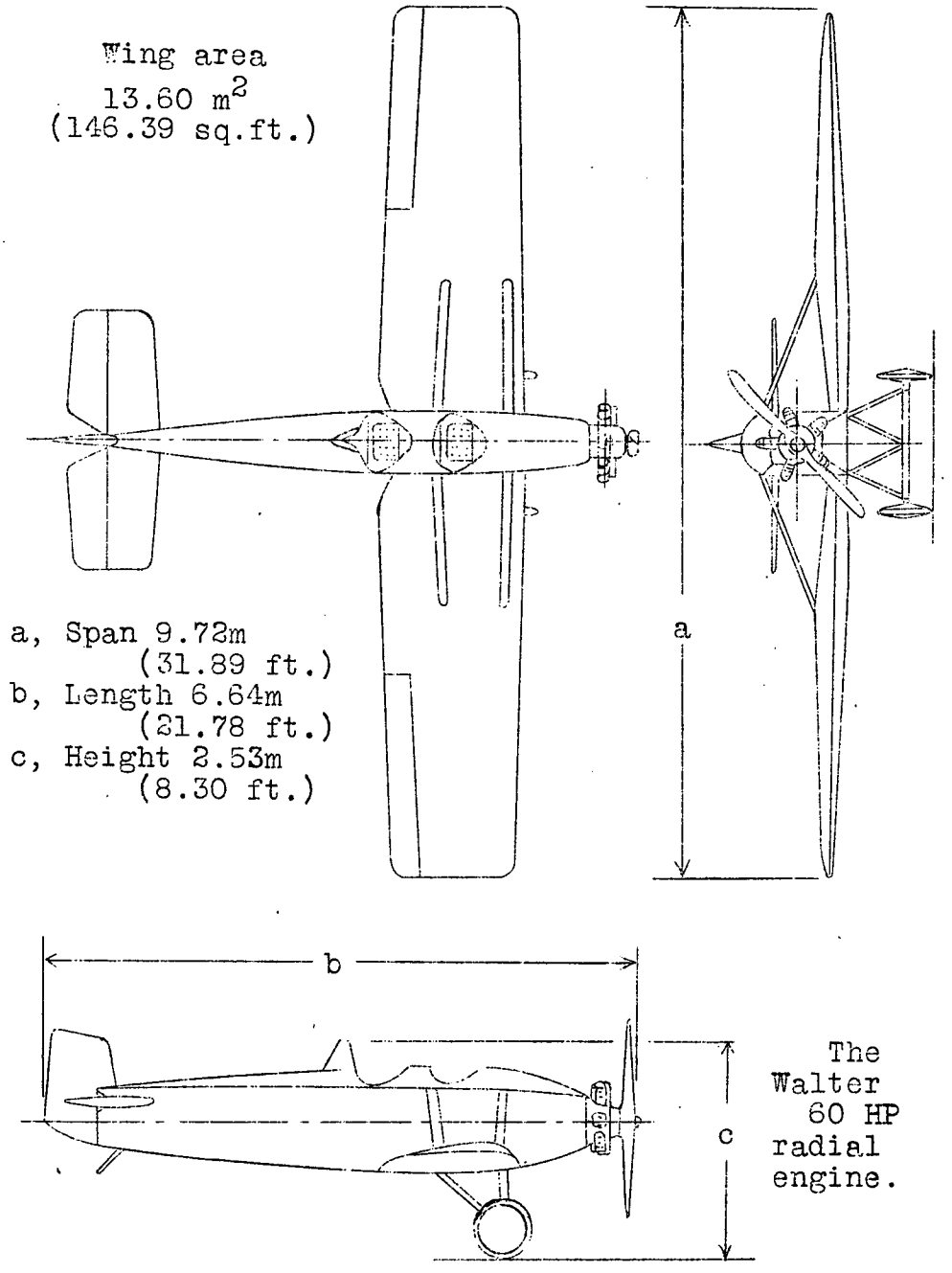

Fig.1 The Avia B.H.11 training airplane.

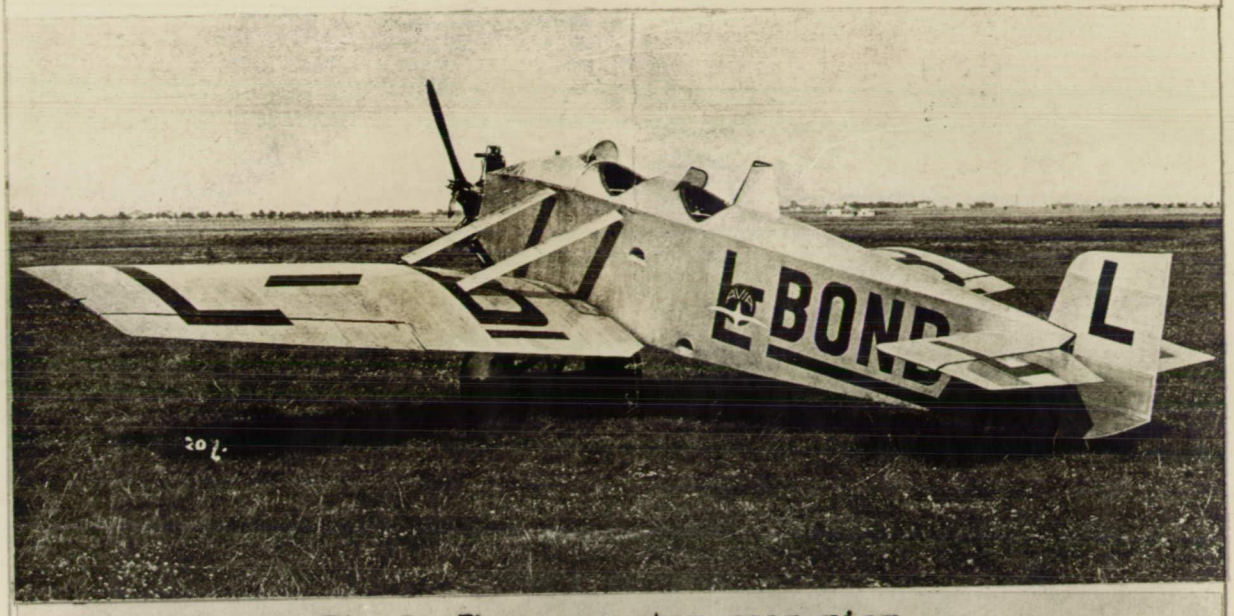

Fig.2 Three quarter rear view.

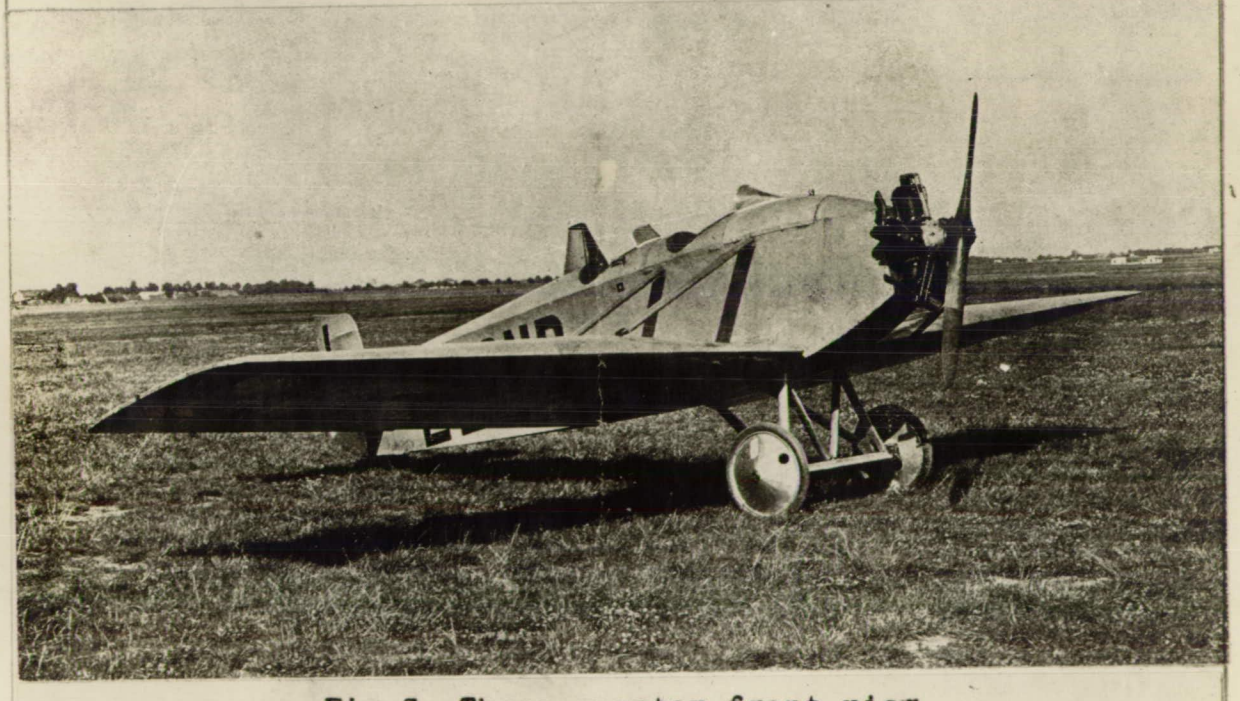

Fig.3 Three quarter front view.

Figs.2 & 3 Views of "Avia B.H.11" training airplane with Walter 60 HP. 5-cylinder radial engine.

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